Idaho National Engineering and Environmental Laboratory

INEEL/EXT-2000-01610
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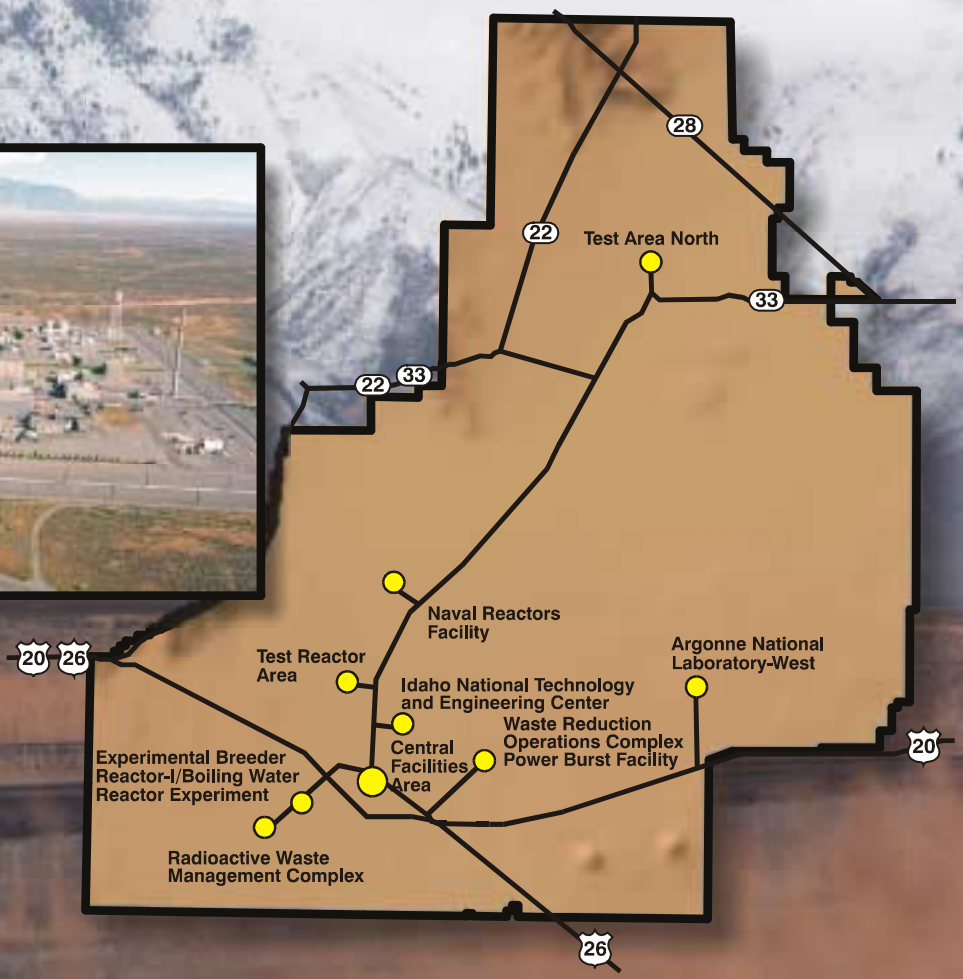
Application for a Title V Operating Permit for the Idaho National Engineering and Environmental Laboratory



Volume VIII Test Reactor Area

INEEL
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Application for a Title V Operating Permit for the Idaho National Engineering and Environmental Laboratory

Volume VIII
Test Reactor Area

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Idaho National Engineering and Environmental Laboratory
Environmental Affairs
Bechtel BWXT Idaho, LLC
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FOREWORD

Volume VIII is one of a total set of ten volumes prepared for the Application for a Title V Operating Permit for the Idaho National Engineering and Environmental Laboratory.

The volumes making up the INEEL operating permit application are numbered as follows.

Volume I	Sitewide Standards and Information, and Operating Permit Application Guide
Volume II	Argonne National Laboratory-West
Volume III	Central Facilities Area
Volume IV	Idaho Nuclear Technology and Engineering Center
Volume V	Waste Reduction Operations Complex
Volume VI	Naval Reactors Facility
Volume VII	Test Area North
Volume VIII	Test Reactor Area
Volume IX	Radioactive Waste Management Complex
Volume X[a]	Radioactive Waste Management Complex, Advanced Mixed Waste Treatment Project, is forthcoming.

This February 2001 application is an updated revision of the July 1995 application (INEL-95/0155, Rev. 1) written to include, but not limited to:

- Changes to the Idaho Administrative Procedures Act Air Regulation;
- Updating the name of the Idaho Chemical Processing Plant to Idaho Nuclear Technology and Engineering Center (Volume IV);
- Cessation of various programs; and
- Addition of Volume X (which is forthcoming) that reflects BNFL, Inc. as the operator for the Advanced Mixed Waste Treatment Project at the Radioactive Waste Management Complex.

a. Anticipated completion FY 2002 by BNFL, Inc.

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FIGURES

TABLES

ACRONYMS

AEC	Atomic Energy Commission
AFBC	atmospheric fluidized bed combustion
AMWTF	Advanced Mixed Waste Treatment Facility
ANL-W	Argonne National Laboratory-West
ANSI	American National Standards Institute
AST	above-ground storage tank
ATR	Advanced Test Reactor
BBWI	Bechtel BWXT Idaho, LLC
BORAX	Boiling Water Reactor Experiment
BRC	below regulatory concern
CAM	continuous air monitor
CEMS	continuous emission monitoring system
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CSSF	Calcined Solids Storage Facility
CGS	Calcine Grinder Setup
COMS	continuous opacity monitoring system
CPP	Chemical Processing Plant (now known as INTEC)
CTF	Contained Test Facility (formerly LOFT)
DEQ	Department of Environmental Quality
DOE	Department of Energy
DOE-ID	Department of Energy-Idaho Operations Office
DOG	dissolver off-gas
DOP	dioctyl phthalate
DOT	Department of Transportation
DU	depleted uranium
DVF	Drum Venting Facility
ECF	Expended Core Facility
EDE	effective dose equivalent
EIS	environmental impact statement
EPA	Environmental Protection Agency
ETR	Engineering Test Reactor
FAA	Federal Aviation Administration
FDP	Fluorinel Dissolution Process
FSA	Fuel Storage Area
HAP	hazardous air pollutant
HEPA	high-efficiency particulate air
HFEF	Hot Fuel Examination Facility (located at ANL-W)
HLLWE	high level liquid waste evaporator
HQ	headquarters
HVAC	heating, ventilation, and air conditioning

ICPP	Idaho Chemical Processing Plant (now known as INTEC)
IDAPA	Idaho Administrative Procedures Act
IET	Initial Engine Test
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
JP-4	jet propulsion 4
JP-8	jet propulsion 8
LET&D	Liquid Effluent Treatment and Disposal (Facility)
LLW	low-level radioactive waste
LOFT	Loss-of-fluid Test
M&O	management and operations
MCR	maximum continuous rating
MDF	Material Development Facility
MTR	Materials Test Reactor
MWSF	Mixed Waste Storage Facility
NA	not applicable
NESHAP	National Emission Standards for Hazardous Air Pollutants
NRF	Naval Reactors Facility
NWCF	New Waste Calcining Facility
OCM	organic composite material
PBF	Power Burst Facility
PCS	petroleum-contaminated soil
PEW	process equipment waste
PM	particulate matter
PM-10	particulate matter with a diameter less than 10µ
PREPP	Process Experimental Pilot Plant
PRF	Process Reclamation Facility
PSD	prevention of significant deterioration
PTC	permit to construct
RAL	Remote Analytical Laboratory
RAM	remote area monitor
RCRA	Resource Conservation and Recovery Act
RCT	radiation control technician
RDF	refuse-derived fuel
RE	Retrieval Enclosure
RESL	Radiological Environmental Sciences Laboratory
RFP	Rocky Flats Plant
RWMC	Radioactive Waste Management Complex
SAL	Special Analysis Laboratory
SDA	Subsurface Disposal Area
SES	Special Equipment Services

SMC	Specific Manufacturing Capability (Facility)
SPING	stack particulate, iodine, and noble gas
SRT	special response team
SWEPP	Stored Waste Examination Pilot Plant
TAN	Test Area North
TMI-2	Three Mile Island Unit 2
TRA	Test Reactor Area
TRAHC	Test Reactor Area Hot Cell
TRU	transuranic
TSA	Transuranic Storage Area
TSF	Technical Support Facility
TSP	total suspended particulates
U.S.C.	United States Code
UST	underground storage tanks
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled
VOC	volatile organic compound
VOCNM	Volatile organic compound-non methane
VOG	vessel off-gas
WCF	Waste Calcining Facility
WERF	Waste Experimental Reduction Facility
WIPP	Waste Isolation Pilot Plant
WMF	Waste Management Facility
WROC	Waste Reduction Operations Complex
WRRTF	Water Reactor Research Test Facility
WSF	Waste Storage Facility
WWTF	Warm Waste Treatment Facilities

SYMBOLS AND ABBREVIATIONS

α	alpha
β	beta
β/γ	beta/gamma
Btu	British thermal unit
Ci	curie
Ci/mo	curie per month
Ci/yr	curie per year
Cm^2	square centemeters
CO	carbon monoxide
g	gram
gr	grain
hp	horse power
lb	pound
μm	micrometers (10^{-6} meters)
MBtu	million British thermal unit
mrem	thousandth of a roentgen equivalent man
mrem/yr	millirem per year
NO_x	nitrogen oxide
SO_x	sulfurous oxide
v/v	volume per volume
w.c.	water column

1. AREA-SPECIFIC INFORMATION

1.1 Facility Description

The Test Reactor Area (TRA), located in the southern part of the INEEL approximately 5 miles northwest of the CFA, provides work area to conduct experiments associated with the development, testing, and analysis of materials used in nuclear and reactor applications, research and development, and both radiological and non-radiological laboratory analyses.

The TRA was originally established in the early 1950s with the development of the Materials Test Reactor (MTR). Two other major reactors followed: the Engineering Test Reactor (ETR) and the Advanced Test Reactor (ATR). The ETR has been inactive since January 1982. The MTR (TRA-603) was shut down and decommissioned in 1970, and the building is now used for irradiated fuel storage, offices, storage, and test areas for the INTEC.

TRA has approximately 80 buildings and 65 structures, which have been modified to fit the changing needs of the INEEL and provide five major types of functional space: reactor, laboratory, office, training, and craft support for maintenance and utilities.

Figure VIII-1-1 shows the location of the TRA at the INEEL. Figure VIII-1-2 provides the layout and physical location of the individual TRA buildings and structures.

The major TRA program is the ATR. TRA personnel provide direct support to this reactor as well as various other programs and activities located throughout the INEEL.

Because of the size of TRA, the area is divided into five zones:

- Heavy industrial zone
- Light industrial zone
- Office professional zone
- Decontamination and decommissioning zone
- Sanitary waste and radioactive effluent zone.

The heavy industrial zone, located generally on the northwestern and central part of the TRA, contains the large ATR building, the reactor's cooling tower, ATR maintenance support and warehousing facilities, and several smaller buildings. This section is joined to the rest of the TRA through such systems as waste lines and roads; however, the zone has a power system that is separate from the major supply to the MTR and ETR. The ATR section power is supplied underground from the main TRA substation (except ATR building heat, which originates from TRA-648) to the transformers on the northeastern corner of the ATR Building. In addition to commercial power, diesel generators at the ATR provide power for the reactor and associated systems.

ANL–W Argonne National Laboratory–West
CFA Central Facilities Area
INTEC Idaho Nuclear Technology and Engineering Center
NRF Naval Reactors Facility
WROC Waste Reduction Operations Complex
RWMC Radioactive Waste Management Complex
TAN Test Area North
TRA Test Reactor Area

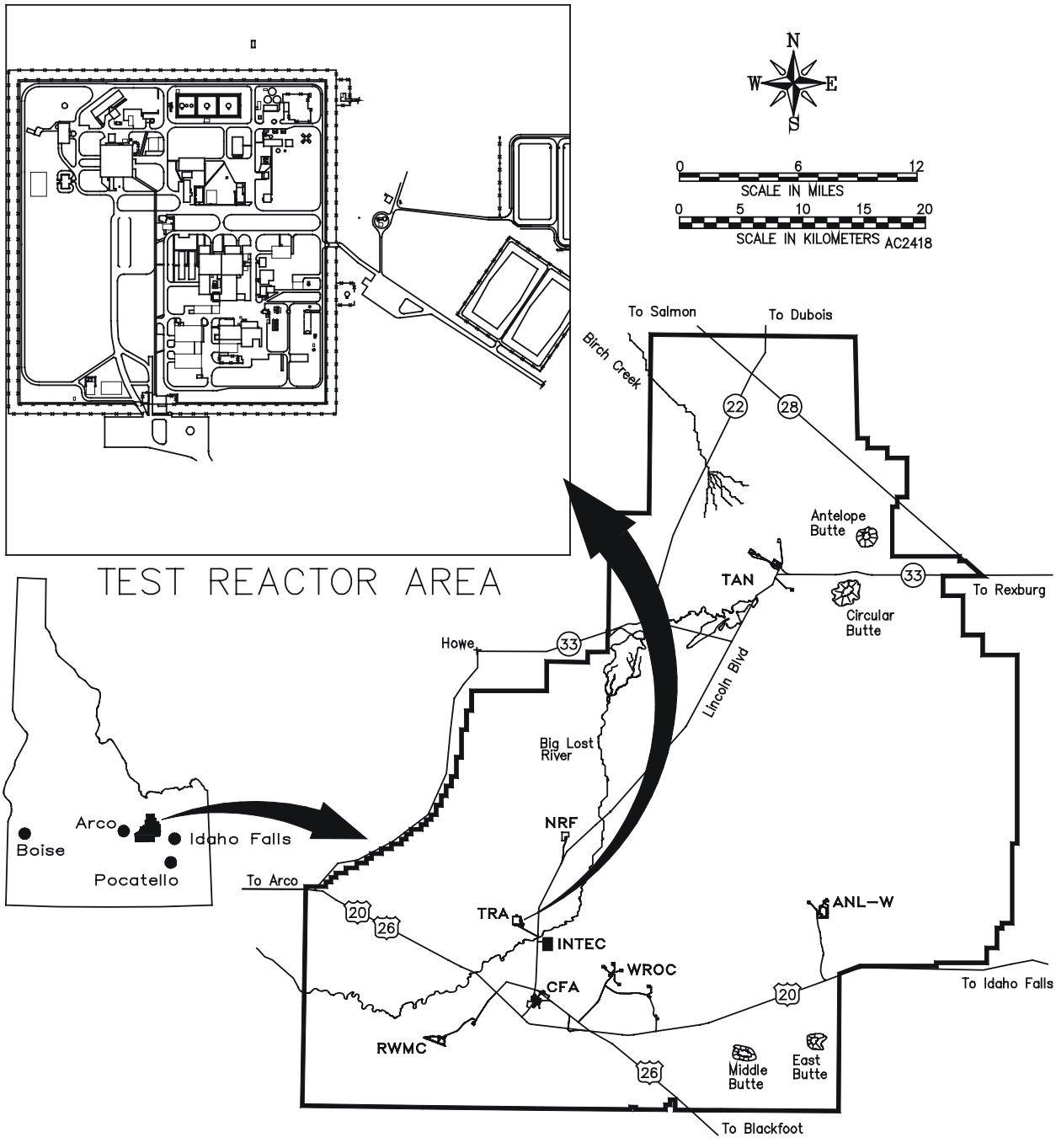

Figure VIII-1-1. Location of the TRA at the INEEL.

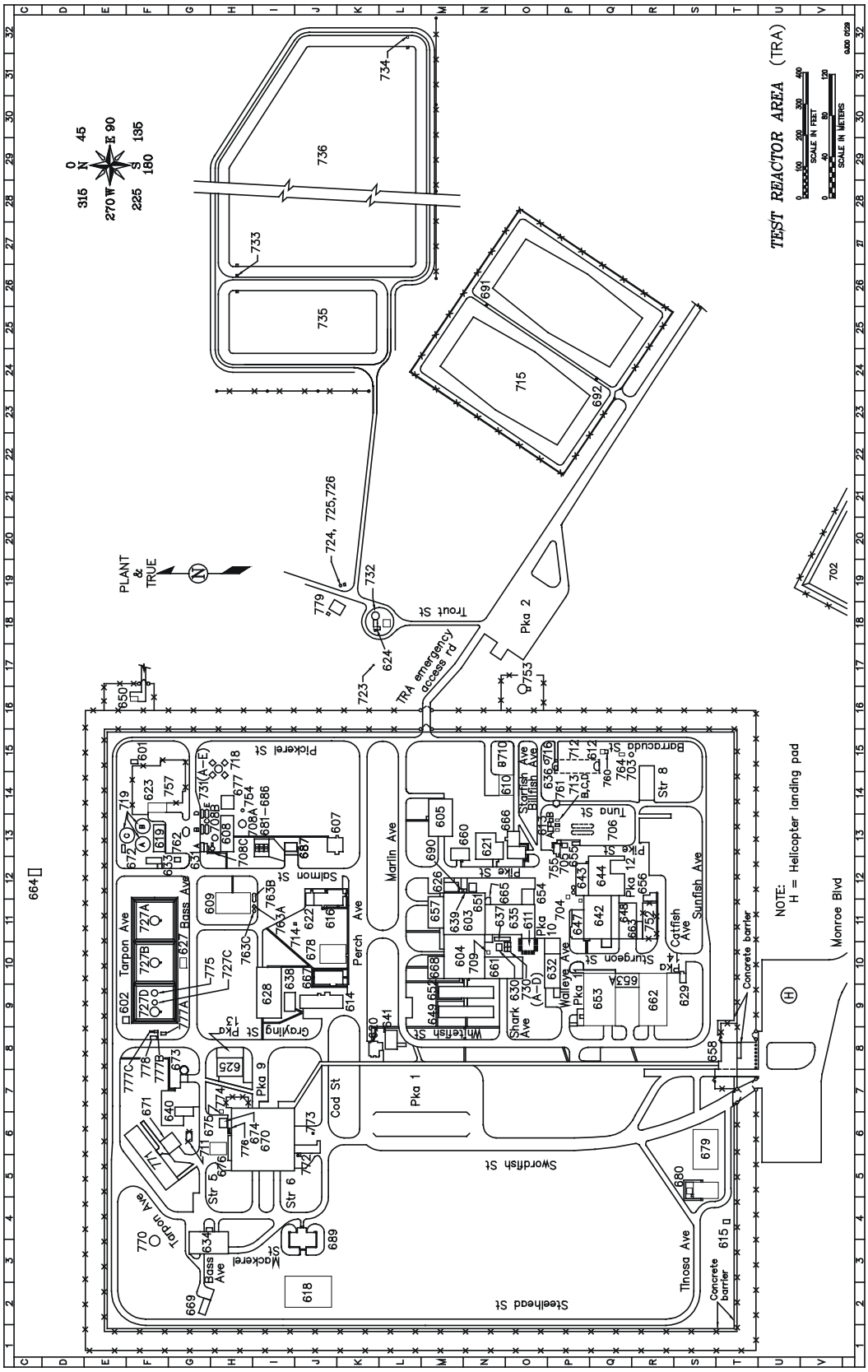

Figure VIII-1-2. Layout and physical location of the individual TRA areas.

The light industrial zone is located generally in the eastern and northern halves of the TRA. It includes such facilities as maintenance and storage buildings; the Tritium Research Laboratory (TRA-666A); the Coupled Fast Reactivity Measurements Facility; the Advanced Reactivity Measurements Facility, TRA-660; the TRA Substation; and storage tanks (for water, diesel oil, acid, and gasoline). Power from the substation serves all of the TRA. TRA's water needs are served by three ground-level, 500,000-gal raw water tanks and an overhead 150,000-gal raw water tank. Facilities for producing and distributing demineralized water, producing compressed air, and distributing diesel fuel are also located in this section.

The office professional zone is located generally from the central section of TRA to the south and southwest boundary corner. This zone houses a receiving and storage warehouse, the main craft maintenance building with a machine shop (TRA-653), an electrical shop, the TRA Hot Cell Facility (TRA-632), training and administrative offices, security access control facilities, the Nuclear Training Facility, and the TRA Emergency Command Center.

The decontamination and decommissioning zone is generally situated in the south central area of TRA. This zone, which includes the MTR Building, is presently used as a common facility, service, and laboratory area. The MTR facilities also include storage areas, canals, a high bay, offices, an assembly area, and a machine shop. Also located in this section is the Hydraulic Test Facility and the ETR Building (TRA-642), both of which are currently inactive. The ETR Office Building (TRA-647), the Electrical Building (TRA-648), and a low-bay area are attached to TRA-642.

The sanitary waste and radioactive effluent zone is located to the east and to the southeast within the security fence and to the east and southeast outside of the security perimeter fencing of the TRA. This zone contains the Retention Basin (TRA-712), Evaporation Pond (TRA-715), and the warm waste transfer sump (TRA-716). Also located in this area is the Sewage Lift Station (TRA-724), associated process and monitoring equipment, Sewage Lagoon #1 (TRA-735), Sewage Lagoon #2 (TRA-736), and the cold waste pond (TRA-702).

The TRA buildings and structures are detailed in Figures VIII-1-1 and VIII-1-2, which provide the relationship of the buildings and structures and a sense of structure density. The buildings and structures that contain operations that are air emission sources at the TRA facility are listed and described below.

1.2 TRA Air Emission Source Listing

The following tables are comprehensive listings of significant and not-significant emissions sources for the TRA. Table VIII-1-1 lists the significant air emission sources that are detailed in this application. Table VIII-1-2 and VIII-1-3 (in the next section) lists the not-significant sources that meet the not-significant criteria described in Volume I, Section 3.10. These not-significant sources will not be specifically addressed in this permit application other than in these tables.

Table VIII-1-1. Significant air emission sources at TRA.

Building Number	Building Name	Vent/Stack Number	Source Description	Comments
TRA-715	TRA Evaporation Pond	TRA-715-001	Evaporation Pond	Radioactive
Multiple[a]	Multiple	Multiple	Internal Combustion Engines	These units are not specifically exempted by IDAPA 58.01.01.317

a. This category includes multiple units at varying locations. They are addressed generally as a source category

Table VIII-1-2. Not-significant non-radiological air emission sources at TRA.

Building Number	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
TRA-604	MTR Building Wing "A"	TRA-604-035	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-604	MTR Building Wing "A"	TRA-604-072	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-604	MTR Building Wing "A"	TRA-604-073	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-604	MTR Building Wing "A"	TRA-604-074	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-604	MTR Building Wing "A"	TRA-604-077	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-607	Carpenter Shop	TRA-607-010	Cyclone exhaust	IDAPA 58.01.01.317.b.i.(30)
TRA-608	Demineralizer Building	TRA-608	Potable water treatment	IDAPA 58.01.01.317.b.i.(16)

Table VIII-1-2. (continued).

Building Number	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
TRA-609	Steam Plant	TRA-609-A	Paint Shop	IDAPA 58.01.01.317.b.i.(17)
TRA-609	Steam Plant	TRA609B001	86.5-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-619	Raw Water Pump House	98TRA00456	300-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-625	Maintenance Support Building	TRA-625-015	Multicraft maintenance facility	IDAPA 58.01.01.317.b.i.(30)
TRA-627	Fuel Oil Pumphouse	98TRA00465	91896-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-627	Fuel Oil Pumphouse	98TRA00464	29957-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-627	Fuel Oil Pumphouse	98TRA00466	34940-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-629	Gas Cylinder Storage Building	98TRA00498	500-gallon propane tank	IDAPA 58.01.01.317.b.i.(4)
TRA-632	TRA Hot Cell	TRA-632-015	Decontamination Room (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-632	TRA Hot Cell	TRA-632-019	Hot cell operations (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-632	TRA Hot Cell	TRA-632-030	Hot cell operations (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-632	TRA Hot Cell	TRA-632-041	Hot cell operations (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-633	Diesel Fire Water	98TRA00481	750-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-653	Maintenance Building	TRA-653-028	Multicraft machine, weld, electrical shop	IDAPA 58.01.01.317.b.i.(9)
TRA-661	Radiochemistry Laboratory	TRA-661-008	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-668	MTR North Wing Extension	TRA-668-013	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-668	MTR North Wing Extension	TRA-668-015	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-670	ATR Reactor Building	98TRA00102	100-gallon tank Molybdenum based corrosion inhibitor	IDAPA 58.01.01.317.b.i.(30)

Table VIII-1-2. (continued).

Building Number	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
TRA-670	ATR Reactor Building	98TRA00122	10-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-670	ATR Reactor Building	TRA-670-074	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-670	ATR Reactor Building	TRA-670-086	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-670	ATR Reactor Building	TRA-670-098	Analytical/research laboratories (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-670	ATR Building	98TRA00126	650-gallon lube oil sump AST	IDAPA 58.01.01.317.b.i.(30)
TRA-670	ATR Building	98TRA00127	650-gallon lube oil sump AST	IDAPA 58.01.01.317.b.i.(30)
TRA-671	ATR Cooling Tower Pumphouse	98TRA00201	8000-gallon sulfuric acid AST	IDAPA 58.01.01.317.b.i.(19)
TRA-671	ATR Cooling Tower Pumphouse	98TRA00202	1500-gallon DREW 2625B dispersant or DREW 6006 Coreactant AST	IDAPA 58.01.01.317.b.i.(30)
TRA-671	ATR Cooling Tower Pumphouse	98TRA00203	1500-gallon Performax 4050 AST	IDAPA 58.01.01.317.b.i.(30)
TRA-671	ATR Cooling Tower Pumphouse	98TRA00204	900-gallon DREW 3025 chlorine dioxide precursor AST	IDAPA 58.01.01.317.b.i.(16)
TRA-671	ATR Cooling Tower Pumphouse	98TRA00205	900-gallon DREW 6006 Coreactant or DREW 2625B dispersant AST	IDAPA 58.01.01.317.b.i.(19)
TRA-674	Diesel Gen. Building	98TRA00211	275-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-680	Emergency Command Center	98TRA00353	300-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-688	Firewater Tank & Pumphouse	01TRA00001	572-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-688	Firewater Tank & Pumphouse	01TRA00002	572-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-710	MTR Exhaust Stack	TRA-710-001	Off-gas for multiple TRA facilities (nonradiological pollutants)	IDAPA 58.01.01.317.b.i.(30)
TRA-735	Sewage Lagoon #1	TRA-735	Sewage pond	IDAPA 58.01.01.317.b.i.(29)

Table VIII-1-2. (continued).

Building Number	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
TRA-736	Sewage Lagoon #2	TRA-736	Sewage pond	IDAPA 58.01.01.317.b.i.(29)
TRA-776	Diesel Tank	98TRA00005	1500-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
TRA-777C	Diesel Tank	98TRA00500	1000-gallon diesel UST	IDAPA 58.01.01.317.b.i.(30)
TRA-777B	Gasoline Tank	98TRA00499	2500-gallon gasoline UST	IDAPA 58.01.01.317.b.i.(30)

a. This tank is listed as not-significant per IDAPA 58.01.01.317b.30. Emissions are discussed in Volume I, Section 3.10.2.1.

1.3 Not-Significant Radionuclide Emission Source Descriptions

Table VIII-1-3 lists the not-significant radionuclide air emission units for TRA. Not-significant sources meet the criteria described in IDAPA 58.01.01.317.b.i.30.

Table VIII-1-3. Not-significant radionuclide air emission sources.

Source ID	Source Description
TRA 604-035	Laboratory Exhaust Stack
TRA 604-072	Laboratory Hood
TRA 604-073	Laboratory Hood
TRA 604-074	Laboratory Hood
TRA 632-015	Laboratory Hood
TRA 632-019	Cell #3 Exhaust Stack
TRA 632-030	Cell #2 Exhaust Stack
TRA 632-041	Cell #1 Exhaust Stack
TRA 661-008	Laboratory Exhaust Stack
TRA 668-013	Laboratory Hood
TRA 668-015	Laboratory Hood
TRA 670-074	Laboratory Hood
TRA 670-086	Laboratory Hood
TRA 670-098	Laboratory Hood
TRA-670 ATR Canal	Diffuse Emissions
TRA 689-001	Waste Storage Stack
TRA 710-001	MTR Main Stack
TRA 753-001	ETR Main Stack
TRA 770-001	ATR Main Stack
Various[a]	Diffuse Soils Contamination

a. Refer to Annual NESHAP Report.

All the above sources do the following:

- Annual emission determinations
- Periodic confirmatory monitoring to determine the need for continuous emission monitoring (point sources only)
- Keeping records of emission determinations and periodic confirmatory monitoring.

The annual radiological emissions from these sources are combined with all other radionuclide emissions from the INEEL to determine compliance with the 10 mrem/yr EDE as required in 40 CFR Part 61, Subpart H. The results are published in the INEEL National Emission Standard for Hazardous Air Pollutants.

1.3.1 TRA-604, MTR Building, Wing "A"

Vent 604-035 collects exhaust from laboratory fume hoods within buildings 604 and 661. Building TRA-604 contains a variety of laboratories that conduct activities such as research and development and/or analytical services. The major laboratory areas are identified as Laboratories 109, 110, 111, 112, 113, and A19. Room 114 is the Radcon office which contains a fume hood used for temporary storage of samples and contaminated items containing low levels of radioactivity. Some low-level decontamination work may be performed in this hood. Laboratory A-19, located in the basement of TRA-604, is used for environmental research and development and/or analytical services with nonradiological sources.

The fume hoods exhausted via TRA-604-035 are housed in the MTR Building Wing A, which supports offices, labs, model shops, storage, and the Radiation Measurements Lab. The stack is 20 ft above the roof and 100 ft above the ground with an inside diameter of 35 in., volumetric flow rate of 10,900 ft^3/min, and exit gas temperature of 70°F. The ventilation system consists of 12 high-efficiency particulate air (HEPA) filters in parallel with a Class II blower. The pollution control equipment consists of Flanders HEPA filters and is 99.97% efficient.

Building TRA-661 "Alpha Wing" activities will be discussed here since the laboratories located there are exhausted via TRA-604-035. Activities in TRA-661 consist of a variety of laboratories and storage. The work conducted in the laboratories in TRA-661 is similar to that in TRA-604 consisting of research and development and/or analytical services.

Only the north end of TRA-661, consisting of Rooms 120-128, vents to TRA-604-035. Included in the north end of TRA-661 wing are the radiochemistry cells, and the mass separator. To prevent a buildup of gaseous fission-product radioactivity in the laboratory area, the vacuum pumping systems for the on-line mass-separator facility are exhausted to the Building 661 laboratory hood exhaust system (TRA-604-035). The mass separator exhaust manifold is coupled onto the Building 661 hood exhaust system. Room 120/124 has two cabinet hoods.

The two radiochemistry laboratories (Labs 110 and 111) in Building TRA-604 contain three hood vents that do not exhaust through the system discussed above (Vent 604-035). The three fume hoods are exhausted separately because they are designed for use with operations using perchloric acid. The laboratory fume hood in Room 110 uses Vent 604-074, and the two laboratory fume hoods in Room 111 use Vents 604-072 and -073.

1.3.2 TRA-632, TRA Hot Cell

Building TRA-632 and its contents is the TRA Hot Cell (TRAHC) Facility. TRA-632 is located between the now inactivated ETR and MTR buildings in the TRA southeast quadrant. This facility is operated by International Isotopes Idaho, Inc. under subcontract to BBWI to provide hot cell services and complete commercial isotope production.

The TRAHC Facility consists of three separate shielded hot cells with an associated truck bay, operating gallery, service area, office space, laboratory space, and change room. The original facility was designed and constructed in 1952 and consisted of one hot cell now known as Hot Cell l. In 1960, two additional hot cells were added in the hot cell extension building. The additional hot cells are designated Hot Cell 2 and Hot Cell 3.

The service area, on the south side of TRA-632 was originally designed to be a warm service area. The warm service area has been decontaminated and is now used as a normal controlled work area and laboratory, except for localized contamination and certain radiation areas where radioactive materials are stored, segregated, decontaminated, sampled and/or characterized.

The mission of the facility is to examine and process irradiated materials, including but not limited to the following:

- Examining an irradiated fuel element from the ATR
- Examining other forms of fissile materials (such as research samples from the damaged Three-Mile Island Unit 2 Reactor)
- Examining irradiated structural materials
- Examining radioactive materials for characterization
- Irradiating materials using radioisotopes within a cell
- Processing radioisotope targets irradiated in the ATR
- Processing radioisotopes to manufacture sealed or unsealed sources and related devices.

The TRAHC Facility, a nonreactor nuclear facility, is used to perform a small number of simple operations with relatively few personnel necessary for operations; little interaction exists between hot cells, and there are few operating systems. Chemical operations within the cells include cleaning processes, preparation of metallurgical samples, and chemical radioisotope separation/preparation processes. A typical operation sequence includes transfer of metal target containers irradiated in the ATR into one of the hot cells, cutting off the ends of the containers to allow removal of the solid target materials, chemical separation or purification, packaging target materials in metal vessels, sealing the vessels by welding (or use of leak tight containers), and packaging the sealed vessels in approved shipping containers in preparation for delivery to offsite customers.

Operations in the hot cells are primarily manual. That is, operations occur only as a result of operator action. Chemical and mechanical operations within the hot cells are relatively simple and are typically achieved by operators using remote manipulators. For example, operations include cleaning targets, and preparing metallurgical samples in epoxy substrata. Some isotope processes include chemical separations and purification, evaporation, and packaging. This work is either accomplished in the shielded hot cells or in glove boxes in the service area. The glove boxes are HEPA filtered and exhaust into the service area. Mechanical operations may include cutting, grinding, polishing, welding, and other operations that can be performed using remote manipulators.

Within the facility is a decontamination room that is used primarily to clean contaminated parts or perform isotope chemical processes. A fume hood collects chemical contaminants from the cleaning process with chemical/radiological constituents and exhausts them through Vent 632-015. Hot Cell 1, Hot Cell 2, and Hot Cell 3 all perform decontamination operations and assembly, disassembly, or destruction of radioactive or radioactive-contaminated materials, and isotope processes. From these operations/processes, particulate and chemical sources that yield chemical and radiological emissions are exhausted through varying filtering systems before being released through Vents 632-041, -030, and -019, respectively.

1.3.3 TRA-661, Radiochemistry Wing (Alpha Wing)

TRA-661 laboratory addition activities consist of radiological and chemical sample preparation, sample analysis, research and development, and treatability studies. The north end of the wing houses emission sources originating from exhaust hoods which combine into a HEPA-filtered exhaust system venting to TRA-604-035 (see Section 1.3.1 for a description). The south end of the wing houses operations. The emissions vent via exhaust hoods to stack TRA-661-008. The source is HEPA filtered. The source vents the radiochemistry wing laboratory extension consisting of seven hoods. It is housed in the single-level research laboratory area. Laboratories include Rooms 129, 130, 132, and 134.

Room 129 of TRA-661 with three cabinet hoods is used for analytical radiochemistry and research and development support for miscellaneous programs, ATR, and Waste Programs. On the north wall is one Class II Type A cabinet fume hood. On the south wall are two Class II Type A cabinet fume hoods with HEPA filtration. The lab has typical laboratory equipment including a centrifuge, oven, furnace, heat guns, hot plates, and gas burners.

Room 130 of TRA-661 with two HEPA-filtered cabinet hoods is used for environmental analysis for miscellaneous programs. On the north wall is a Class II Type A cabinet fume hood with HEPA filtration. On the south wall is a Class II Type A cabinet fume hood with HEPA filtration. The chemicals most frequently used in the lab are solvents such as acetone, ethanol, and propanol. The lab has typical laboratory equipment including a centrifuge, stirrers, mixers, ovens, furnace, mantles, hot plates, and gas burner.

Room 132 of TRA-661 has one Class II Type A cabinet fume hood with a HEPA filter and is used for actinide radiochemistry research and general research and development, including radiolysis studies. The lab has typical laboratory equipment including a centrifuge, stirrers, mixers, ovens, mantles, hot plates, and gas burners.

Room 134 of TRA-661 has one Class A cabinet hood with down line HEPA filtration and one atomic absorption canopy hood. It is for general research and development, and has a vented Inductively Coupled Plasma analytical instrument to support research and development and waste treatability. The lab has typical laboratory equipment including hot plates.

1.3.4 TRA-668, MTR North Wing Extension

TRA-668 is an extension of TRA-604 and houses four laboratories (in Rooms 97, 98, 99, and 100) used for analytical laboratory operations and physics research. Operations conducted within these rooms include development and operation of radiation counting equipment and physics experiment mockups. Also conducted in TRA-668 is research similar to that conducted in Buildings TRA-604 and -661; the quantities of radioactive materials and sources stored and used in this area are of similar intensity and volume and are usually sealed. Rooms 97 and 99 are electronic laboratories where sources are used but not stored; Rooms 98 and 100 use radioactive sources. The vents associated with Rooms 98 and 100 are 668-013 and 668-015. Analytical lab and physics research studies operations in TRA-668 include development and operation of radiation counting equipment and physics experiment mockups. Sources are sealed and stored.

1.3.5 TRA-670, ATR

The ATR is a testing and production nuclear reactor used to perform irradiation programs and irradiation services. The reactor was constructed in 1965, with full power beginning in 1969. The ATR was constructed to continue the irradiation program being performed at the now inactive ETR. The ATR

is now primarily devoted to reactor fuel systems and materials studies. The ATR produces an extremely high neutron flux for testing the durability of reactor fuels and material. In addition to the experimental irradiation, the ATR's secondary mission is to produce various isotopes, including about 50% of the iridium and 2% of the cobalt-60 used domestically. Iridium-192 is used primarily for nondestructive examination technology in metal manufacturing processes, but recent developments have expanded its applications to include cancer teletherapy. Most of the cobalt produced is used for product sterilization, but it is also used in industrial and medical processes. Radioisotope targets are irradiated in the ATR, removed, and processed at the TRA-632 Hot Cells or other on-Site and off-Site facilities.

Several air emissions sources, which include analytical laboratories with experiment and/or fume hoods and hydrocarbon-fueled engines with associated storage tanks, are located at this facility.

Normal operation of the ATR results in the generation and release of radioactive gases and particulates to the atmosphere due to (a) leakage of fission products from reactor fuel or experiments, (b) activation of stable isotopes in the neutron flux of the reactor core, and (c) gaseous effluents from laboratory activities. Gaseous waste management systems at the ATR are required to be designed to protect plant personnel, the public, and the environment by mitigating releases of radioactive gases generated during normal operations and anticipated operational occurrences.

Radioactive gaseous wastes generated during operation of the ATR facility are managed by ventilation systems that collect gases at or near their generation point for ultimate disposal to the atmosphere. Gases are routed from low to high contamination areas to minimize spread of radionuclides to clean areas. Portions of the ventilation system are safety-related to protect against accident releases of radionuclides. The primary source of radioactive gaseous effluent at ATR is from degassing of the primary coolant. Emissions discussed in this and the previous paragraph are exhausted through the ATR Main Stack (TRA-770-001).

Activated argon is the primary radioactive gaseous effluent from ATR. Sources of argon include that absorbed in the primary coolant water from air, and from the air purge on the instrument thimbles.

TRA-670 includes the following analytical laboratories:

- Laboratory 103, used for chemical analysis of samples and as a backup for the other in-plant laboratories.

- Laboratory 106, also called the Radiation Control Office, is another laboratory that prepares samples for subsequent analysis. Both Laboratories 103 and 106 share a common HEPA-filtered vent, 670-098, for any chemical and radiological emissions from the areas.

- Laboratory 124, located just north of the fuel storage canal. This lab is used to obtain samples from the primary and secondary coolant systems, as well as other process samples from other facility systems. Within the laboratory, samples are analyzed for pH and conductivity, and other analyses, and are prepared for transport to the Radiation Control Laboratory (Laboratory 106). The fume hood located in the lab collects chemical emissions with potential radiological contamination. The exhaust of the fume hood passes through a HEPA filtering system before being released in Vent 670-074.

- Laboratory 131, located just off of the reactor refueling floor, is utilized to sample and analyze experimental loop water chemistry for hydrogen and total gas content as well as other determinations in support of process samples. The analytical results are evaluated to determine type and quantity of chemicals that might be required to be injected into the

experimental loops to maintain water chemistry within specification. The exhaust of the fume hood passes through a HEPA filtering system before being released in Vent 670-086.

1.3.6 TRA-670, ATR Canal

The ATR Canal is a source of diffuse radionuclide emissions. The emissions are diffuse because they are not collected and vented through a specific point source. Emissions may reach atmosphere air via numerous building vents and doorways.

1.3.7 TRA-689-001, Radioactive Waste Storage

The TRA-689-001 stack exhausts the Radioactive Waste Storage Building (TRA-689). The building contains four 15,000-gallon radioactive liquid storage tanks each in a separate tank room (Rooms 101, 102, 104,105). The tanks store either ATR primary coolant water from the ATR reactor during reactor outages so that the primary coolant water may be recycled, or radioactive liquid waste prior to disposal to an on-Site INEEL facility or off-Site facility. Each tank has a HEPA filtered passive vent that exhausts inside each tank room. Ambient air is drawn into the pump room (Room 103) and directed toward each tank room. Each tank room is ventilated by an exhaust duct that flows to a centralized HEPA filter and then discharges to the TRA-689-001 stack.

In addition to the storage tanks, the building also contains two glove boxes located in the sample room (Room 201). The glove boxes are used to sample the primary coolant water or radioactive liquid wastes. Exhaust from the glove boxes is controlled by two HEPA filters and routed to TRA-689-001 downstream of the centralized HEPA filter that controls the ventilation from the tank rooms.

1.3.8 TRA-710, MTR Stack

The MTR Stack (TRA-710-001) vents old laboratory vent scrubber system exhausts, TRA-760 Effluent Water Monitoring Station, TRA-761 Tank Truck Loading Facility, TRA-661 Radiochemistry Cell exhaust, Cf-252 cave, TRA- 632 Hot Cell off-gas vents, TRA-632 Hot Cell warm drains, TRA-666A Tritium Laboratory, TRA-605 Process Water Building, MTR Tank Vents, and TRA-603 ventilation exhaust. The MTR canal, containing spent reactor fuel, is located in TRA-603. Ventilation for the Radiochemistry Hot Cell and glove boxes in TRA-661 is controlled by a HEPA filter which replaced a vent scrubber system that is no longer operational. The Radiochemistry Hot Cell operations are conducted in TRA-661, Room 127. Although the samples have higher levels of radioactivity that require handling in shielded enclosures, radiochemistry cell procedures are much like those conducted in the fume hoods in the other laboratories in TRA-661 and TRA-604. Preparation of the solid and liquid samples includes digestion extraction, weighing, drying, filtering, mixing, and heating. These operations use heating sources and open flames, flammable and compressed gases, organic and inorganic chemicals, radioactive materials, mechanical mixing devices, and material handling-equipment.

1.3.9 TRA-753, ETR Stack

The ETR Stack (TRA-753-001) exhausts the Engineering Test Reactor Building (TRA-642) and the ETR Heat Exchanger Building (TRA-644). The ETR is deactivated, de-fueled, and de-watered. The ETR Building (TRA-642) still houses the ETR reactor vessel and other ETR components.

1.3.10 TRA-770, ATR Main Stack

This source is the main stack for the ATR ventilation and exhaust gases. Radioactive gaseous wastes generated during operation of the ATR facility are managed by ventilation systems that collect

gases at or near their generation point for ultimate disposal to the atmosphere. Gases are routed from low to high contamination areas to minimize spread of radionuclides to clean areas. Portions of the ventilation system are safety-related to protect against accident releases of radionuclides. The ATR Cooling Tower (TRA771) cools secondary cooling water for the ATR and is a source of PM-10. The cooling tower is not specifically addresses in this application because it is listed as an insignificant activity in IDAPA 58.01.01.317.01.a.i.107.

2. SOURCE SPECIFIC INFORMATION

2.1 TRA-715, TRA Evaporation Pond

2.1.1 General Description

2.1.1.1 Process Description.

The TRA Evaporation Pond receives discharge from the Warm Waste Water System at the INEEL TRA. The Warm Waste Water System consists of four 50 cubic foot ion exchange beds in two Warm Waste Treatment Facilities (WWTF), the Process Water Building (TRA-605), the Retention Basin Inlet Sump (TRA-712), and the Evaporation Pond Pump Station (TRA-716). Additional system components include four 65 ft^3 Bypass Demineralizer resin beds in the ATR (TRA-670) used for chemistry control and cleanup of ATR primary coolant water. The ion exchange media are bypassed in situations involving high conductivity water and/or treatment of water where there would be no appreciable reduction in emissions.

The main discharge path is from the outlet of the WWTF through the Process Water Building (TRA-605), the Retention Basin Inlet Sump (TRA-712), and the Evaporation Pond Pump Station (TRA-716) to the Evaporation Pond. The other main discharge path is from the Bypass Demineralizer resin beds through the same facilities. The effluent water is sampled by the Effluent Radiation Monitor (ERM) in the TRA-605 basement and by the daily proportional sampling system in the building TRA-636 at the Retention Basin Inlet Sump. Minor discharge paths include some buried piping from existing tanks and old reactor facilities which are routed directly to the Retention Basin Inlet Sump and infrequent discharges routed directly to the Evaporation Pond itself from generating sources both inside and outside of the TRA site. In cases where water is diverted around either the ERM or the daily proportional sampling system, the waste water is sampled to confirm compliance with the emission limits.

2.1.1.2 Control Description.

Air emission points and associated controls include the following:

The evaporation pond is 10 ft deep, 5 ft below grade with a 5 ft high berm. The pond has a double liner separated by 1 ft of sand. The perforated drainage pipe is installed between the liners and the pipe will slope toward a sump to provide leak detection capability. The pond is located approximately 1,250 ft east of the east TRA perimeter fence. The total area of the pond is approximately 5 acres.

A 20,000 gallon floating roof storage tank is used to accept discharge water which will be diverted to this storage tank when the radionuclide loading exceeds 100 times the normal level. The storage tank vent exhausts through the ventilation system to the TRA MTR Stack.

A 100,000 gallon floating roof storage tank is used to accept discharge water which will be diverted to this storage tank when the radionuclide loading exceeds 1000 times the normal level. The storage tank vent exhausts through the ventilation system to the TRA MTR Stack.

2.1.2 TRA-715-001 Specific Information

This section contains information on the TRA-715-001 Evaporation Pond. See Figure VIII-2-1 for the state operating permit application form for this source.

2.1.2.1 Process Description. All emissions from the warm waste transfer sump (TRA-716) and the Retention Basin inlet sample house (TRA-636) are included in the evaporation pond emissions, since all volatile radionuclides discharged to the pond are considered released. A process flow diagram is not required for this source.

2.1.2.2 Maximum Regulated Pollutant Emissions. The following data addresses regulated pollutants potentially emitted from this source.

Pollutant	CAS	Maximum annual emission	Units	Criteria pollutant
Radionuclides	NA	10[a]	mrem/yr	—

a. This is an aggregate limit for all radionuclides at the INEEL.

2.1.2.3 Compliance Requirements.

2.1.2.3.1 Permitted Emission Limits—The following are limits for which this source must maintain compliance.

Pollutant	CAS	Limit	Units
Volatile radionuclides	NA	324.3	Ci/yr
		27.1	Ci/mo
Nonvolatile radionuclides	NA	510.9	Ci/yr
		42.6	Ci/mo

2.1.2.3.2 Existing Permit Requirements—The following is a list of all permit-related enforceable requirements specific to this source. This source is regulated by conditions in State of Idaho PTC 023-0001(TRA Evaporation Pond, December 13, 1995). The requirement in this PTC to monitor and test pursuant to Code of Federal Regulations 40 CFR Part 61.93 was removed by the DEQ per the letter provided in Appendix A.

1. The permittee shall operate this source in accordance with all the applicable requirements contained in the National Emission Standards for Emissions of Radionuclide from Department of Energy Facilities (40 CFR 61.90) (reference Section 2.1 of PTC).

2. Volatile radionuclide discharges to the evaporation pond shall not exceed 27.1 Curies per month nor 324.3 Curies per year, as determined from daily proportional sampling (reference Section 2.2 of PTC).

3. Nonvolatile radionuclide discharges to the evaporation pond shall not exceed 42.6 Curies per month nor 510.9 Curies per year as determined from daily proportional sampling (reference Section 2.3 of PTC).

4. The permittee shall conduct daily proportional composite sampling on the effluent stream prior to the entry point to the evaporation pond. Each daily grab sample will be analyzed to demonstrate compliance with the nonvolatile radionuclide emission limit. A composite

sample will be analyzed on a monthly basis using liquid scintillation counting methods to determine compliance with the volatile radionuclide emission limit (reference Section 3.1 of PTC).

5. The permittee shall perform weekly radiological surveys of the pond liner during the second and third quarters of each calendar year (April 1 to September 30) and decontaminate as necessary to maintain contamination levels less than or equal to 10^5 dpm/100 cm^2 (1.0E5 disintegrations per minute per 100 square centimeters of any exposed evaporation pond liner) (reference Section 3.2 of PTC).

6. The permittee shall monitor and test in accordance with the requirements described in 40 CFR 61.93 (reference Section 3.3 of PTC). (See Appendix A to this volume.)

7. The permittee shall install, calibrate, maintain and operate, in accordance with manufacturer's specifications, a sodium iodide detector (or equivalent alternative method) to monitor for gross gamma radiation in the effluent stream to the evaporation pond. The detector will be calibrated to the "normal" discharge stream and will trigger an alarm when the discharge stream radionuclide loading exceed 10 times the "normal" level. When this level is exceeded, the permittee shall replace or regenerate the resin bed within the ensuing 24 hours if it was a malfunction of the resin bed that caused the alarm. If the discharge stream radionuclide loading exceeds 100 times the "normal" levels, the discharge stream will be diverted to the 20,000-gal interim storage tank. If the discharge stream radionuclide loading exceeds 1000 times the "normal" levels, the discharge stream will be diverted to the 100,000-gal interim storage tank (reference Section 4.1 of PTC).

8. In the event of a diversion of the effluent flow, all water diverted to the 20,000-gal and 100,000-gal interim storage tanks will be rerouted through the cleanup system, prior to entering the evaporation pond. If required, the diverted water may be transported to the Idaho Nuclear Technology and Engineering Center (INTEC) at the INEEL or to some other facility for processing (reference Section 4.2 of PTC).

9. The permittee shall submit to the Idaho Air Quality Bureau a quarterly report summarizing the results of discharge stream monitoring. The report shall contain an estimation of the amount of radionuclides discharged to the evaporation pond (in curies) during each reporting period. The report shall distinguish between volatile and nonvolatile radionuclide emissions. The quarterly report shall be based on a quarter calendar year and is due no later than 30 days after the end of each quarter (reference Section 5.1 of PTC).

10. The permittee shall receive documentation of Environmental Protection Agency (EPA) approval on the proposed radionuclide monitoring and test procedures. This documentation shall be submitted to the Idaho Air Quality Bureau prior to the operation of the source covered by this permit (reference Section 5.2 of PTC). (See Appendix A to this volume.)

11. The permittee shall record each date when a radiological survey of the evaporation pond liner is completed to demonstrate compliance. This information shall be recorded in a log which shall be kept on-site for the most recent 2 year period and shall be made available to the Idaho Air Quality Bureau representatives upon request (reference Section 5.3 of PTC).

12. The permittee shall develop and submit to the Idaho Air Quality Bureau an "Operation and Maintenance Manual" for the radiological survey and decontamination of the evaporation

pond liner (action completed with June 4, 1996 submittal to DEQ). At a minimum, the manual shall address the following:

The methods and procedures used to conduct the radiological survey of the evaporation pond liner.

The methods and procedures used in decontaminating the evaporation pond liner (reference Section 5.4 of PTC).

13. This source, in aggregate with all other radiological sources at the INEEL, has a radionuclide emission limit of 10 mrem/yr EDE in accordance with 40 CFR 61, Subpart H.

2.1.2.3.3 Other Enforceable Requirements—Periodic Confirmatory Measurements must be conducted in accordance 40 CFR Part 61.93 (b) to determine radionuclide emissions used to demonstrate compliance with emissions limit. All emissions from this source must be included in the facility wide INEEL Annual NESHAPs Report (40 CFR, Part 61.94) and records supporting the emissions measurements must be kept as stated in 40 CFR, Part 61.95. See compliance methodology form in Section 5.5.1 in Volume I.

The State of Idaho regulates visible emissions as determined by emission opacity. Visible emissions shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60-minute period. See compliance methodology form in Section 5.1 of Volume I.

2.1.2.4 Compliance Methodology and Status.

2.1.2.4.1 Compliance Plan—This source is in compliance, and will continue to comply, with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, this source will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.1.2.4.2 Compliance Methodology Forms—See Figure VIII-2-2, along with Figure 7 contained in Section 5 of Volume I. Emissions from all facilities in the Warm Waste Water System are included in the evaporation pond emissions estimates (e.g., emissions from TRA-636 and TRA-716).

2.1.2.5 Emission Calculations. The following section provides a description of calculations used to calculate emissions in the regulated pollutant table and the annual NESHAP report.

2.1.2.5.1 Nonradionuclide Emissions—Not required.

2.1.2.5.2 Radionuclide Emissions—This section provides calculation parameters for methodologies which are specific to this source. For a detailed discussion of radionuclide emission calculation methodologies, refer to Volume I, Appendix E.

Radionuclide emissions for this source are calculated based on quantities discharged into the evaporation pond. Results of samples taken and analyzed according to PTC requirements are used to determine releases to the pond using Method IVA in Appendix E of Volume I. Releases from the pond are assumed to be 100% of the volatile radionuclides discharged and only the resuspended fraction in the case of radionuclides associated with the pond sediment. The resulting EDE is calculated as described in Volume I, Section 5.5.1.

Figure VIII-2-1. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A — GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION	
TRA - 715 - 001	Evaporation Pond	TRA - 715	
MANUFACTURER	MODEL		DATE INSTALLED OR LAST MODIFIED
NA	NA		1993

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	NA	NA	NA	NA	NA
PRODUCT OUTPUT	NA	NA	NA	NA	NA
WASTE OUTPUT	NA	NA	NA	NA	NA
RECYCLE	NA	NA	NA	NA	NA

POTENTIAL HAPS IN PROCESS STREAMS

HAP DESCRIPTION	HAP CAS NO.	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLESTREAM BY WEIGHT
Radionuclides	NA	NA	NA	NA	NA

Figure VIII-2-1. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER			
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV
41	27	5	27

NORMAL OPERATING SCHEDULE		
HR/D	D/WK	WK/YR
24	7	52

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	NA	NA
TYPE CODE (APPENDIX H)	NA	NA
MANUFACTURER	NA	NA
MODEL NO.	NA	NA
INLET TEMPERATURE (ºF)	NA	NA
PRESSURE DROP (IN. H_2O)	NA	NA
WET SCRUBBER FLOW (GPM)	NA	NA
BAGHOUSE AIR/CLOTH RATIO (FPM)	NA	NA

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA

BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)
NA	NA	NA

STACK DATA

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK[a] TYPE
4,922	342.2	4,827.6	05

STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (ºF)
NA	NA	NA	NA

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS	ALLOWABLE EMISSIONS	REFERENCE
Radionuclide	NA	NA	NA	NA	10 mrem/yr in aggregate with other INEEL sources	40 CFR 61.92
					Volatile Radionuclides:	State of Idaho
					324.3 Ci/yr	PTC-TRA
					27.1 Ci/mo	Evaporation
					Nonvolatile Radionuclides	Pond dated
					510.9 Ci/yr	12-13-95
					42.6 Ci/mo	

Emission Point Number: TRA-715-001

REQUIREMENT 1

Applicable requirement:

1. Volatile radionuclide discharges to the evaporation pond shall not exceed 27.1 Ci/mo nor 324.3 Ci/yr, as determined from daily proportional sampling.
2. Nonvolatile radionuclide discharges to the evaporation pond shall not exceed 42.6 Ci/mo nor 510.9 Ci/yr as determined from daily proportional sampling.

Requirement basis: PTC 023-00001 (TRA Evaporation Pond, December 13, 1995)

Compliance method type: NA

REFERENCE TEST METHOD

Reference test method description: Liquid Scintillation

Reference test method citation: NA

MONITORING

Monitoring device type: Proportional water sampling

Monitoring location description: Prior to discharge to pond

Regulated air pollutant being monitored: Radionuclides

Generally describe the frequency and duration of sampling and how the data will be reported:

1. A composite sample will be analyzed on a monthly basis using liquid scintillation counting methods to determine compliance with the volatile radionuclide emission limit specified.
2. A daily grab sample will be analyzed to determine compliance with the nonvolatile radionuclide emission limit.

RECORDKEEPING

Data (parameter) being recorded: Radionuclide discharges to pond (volatile and nonvolatile radionuclides), radiological surveys.

Frequency of recordkeeping (how often data recorded):

1. Volatile Radionuclides—monthly
2. Nonvolatile Radionuclides—daily
3. Radiological Surveys-Weekly (April 1-September 30)

REPORTING

Generally describe what is reported:

A quarterly report shall be submitted to the Idaho Air Quality Bureau summarizing the results of discharge stream monitoring and estimating the amount of radionuclides discharges to the evaporation pond (in curies) during the reporting period.

The quarterly report shall be based on a quarter calendar year and is due 30 days after the end of each quarter.

The report shall distinguish between volatile monthly and nonvolatile daily sampling radionuclide emissions.

Frequency of reporting: Quarterly

Beginning date: January 30, 1996

Figure VIII-2-2. Compliance Certification Form (method of compliance).

Emission Point Number: TRA-715-001

REQUIREMENT 2

Requirement: The permittee shall perform weekly radiological surveys of the pond liner during the second and third quarters of each calendar year (April 1 to September 30) and decontaminate as necessary to maintain contamination levels less than or equal to 10^5 dpm/100 cm^2 (1.0E5 disintegration's per/min per 100 square centimeters of any exposed evaporation pond liner).

Requirement basis: PTC 023-00001 (TRA Evaporation Pond, December 13,1995)

Compliance method type: NA

REFERENCE TEST METHOD

Reference test method description: Per submitted Operation and Maintenance Manual

Reference test method citation: Per submitted Operation and Maintenance Manual

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated air pollutant being monitored: NA

Generally describe the frequency and duration of sampling and how the data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Radiological surveys of the pond liner and the date when the radiological survey of the evaporation pond liner is completed. This information shall be recorded in a log which shall be kept on-site for the most recent 2 year period and shall be made available to the Idaho Air Quality Bureau representatives upon request.

Frequency of recordkeeping (how often data recorded): Weekly during the second and third quarters of each calendar year (April 1 to September 30)

REPORTING

Generally describe what is reported: An "Operation and Maintenance Manual" for the radiological survey and decontamination of the evaporation pond liner. At a minimum, the manual shall address the following:

The methods and procedures used to conduct the radiological survey of the evaporation pond liner.

The methods and procedures used in decontaminating the evaporation pond liner.

Frequency of reporting: NA

Beginning date: Action completed with June 4, 1996 submittal to DEQ

Figure VIII-2-2. (continued).

Emission Point Number: TRA-715-001

REQUIREMENT 3

Requirement: The permittee shall install, calibrate, maintain and operate, in accordance with manufacturer's specifications, a sodium iodide detector (or equivalent alternative method) to monitor for gross gamma radiation in the effluent stream to the evaporation pond. The detector will be calibrated to the "normal" discharge stream and will trigger an alarm when the discharge stream radionuclide loading exceeds 10 times the "normal" level. When this level is exceeded, the permittee shall replace or regenerate the resin bed within the ensuing 24 hours if it was a malfunction of the resin bed that caused the alarm. If the discharge stream radionuclide loading exceeds 100 times the "normal" levels, the discharge stream will be diverted to the 20,000-gal interim storage tank. If the discharge stream radionuclide loading exceeds 1,000 times the "normal" levels, the discharge stream will be diverted to the 100,000-gal interim storage tank.

In the event of a diversion of the effluent flow, all water diverted to the 20,000-gallon and 100,000-gallon interim storage tanks will be rerouted back through the cleanup system, prior to entering the evaporation pond. If required, the diverted water may be transported to the Idaho Nuclear Technology and Engineering Center (INTEC) at the INEEL or to some other facility for processing.

Requirement basis: PTC 023-0001 (TRA Evaporation Pond, December 13,1995)

Compliance method type: Administrative Control

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated air pollutant being monitored: NA

Generally describe the frequency and duration of sampling and how the data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: NA

Frequency of recordkeeping (how often data recorded): NA

REPORTING

Generally describe what is reported: NA

Frequency of reporting: NA

Beginning date: NA

Figure VIII-2-2. (continued).

2.2 Internal Combustion Engines

Internal Combustion Engines of various sizes and configurations are utilized at TRA. These engines are exempt from PTC requirements by IDAPA 58.01.01.220 or they are grandfathered. Engines may be gasoline, propane, or diesel-fired. Uses for these units include, but are not limited to: continuous use generators, emergency generators, stand-by generators, fire-water pumps, and air compressors. Table VIII-2-1 provides examples of the types of engines currently in use at TRA. It should be noted that this is not intended to be a comprehensive list of all the engines at TRA. A complete listing is not provided because the units in use are continually changing and there are no unit-specific applicable requirements associated. The general requirements are listed below.

2.2.1 Engine Specific Information

Table VIII-2-1. Internal combustion engines currently in use at TRA.

Building Number	Building Name	Vent/Stack Number	Source Description
TRA-609B	Steam Plant	TRA-609B-001	250-hp portable diesel air compressor (609-M-87) stationed outside TRA-609
TRA-619[a]	Raw Water Pumphouse	TRA-619-008, 009	558-hp standby diesel firewater pump (619-M-10) dual exhaust
TRA-633	Fire Water Pumphouse	TRA-633-003, 004	558-hp standby diesel firewater pump (633-M-1) dual exhaust
TRA-670	ATR Reactor Building	TRA 670-046	2118-hp continuous use diesel generator (670-M-42), constructed 1969 and therefore considered "grandfathered"
TRA-670	ATR Reactor Building	TRA 670-053	2118-hp continuous use diesel generator (670-M-43), constructed 1969 and therefore considered "grandfathered"
TRA-674[a,b]	Diesel Generator	TRA-674-007	2132-hp emergency diesel generator (674-M-6)
TRA-688[a]	Fire Water Tank & Pumphouse	TRA-688-001	368-hp diesel firewater pump (688-M-1)
TRA-688[a]	Fire Water Tank & Pumphouse	TRA-688-002	368-hp diesel firewater pump (688-M-2)
TRA-680[a]	Emergency Command Center	TRA-680-001	250-hp emergency diesel generator (680-M-1)

a. This source consumes a prevention of significant determination (PSD) increment (see Volume I, Section 6.6).

b. A PTC application has been submitted for this source which requests enforceable limits and non-emergency use.

2.2.1.1 Process Description. These units are utilized for various support functions at TRA.

2.2.1.2 Maximum Regulated Pollutant Emissions. Emissions are not quantified here because type and number of units may be continually changing and there are no associated emission limits.

2.2.1.3 Compliance Requirements.

2.2.1.3.1 Permitted Emission Limits—None.

2.2.1.3.2 Existing Permit Requirements—None.

2.2.1.3.3 Other Enforceable Requirements—

- The State of Idaho regulates visible emissions as determined by emission opacity. Visible emissions shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60-minute period. See compliance methodology form in Section 5.1 of Volume I.

- Diesel Engines shall not burn fuel with a sulfur content greater than 0.5% by weight.

2.2.1.4 Compliance Methodology and Status.

2.2.1.4.1 Compliance Plan—The M-6 (vent TRA-674-007) diesel generator was built in 1985 without seeking a permit to construct from the State of Idaho DEQ. The generator was operated in both a standby and emergency capacity. Currently M-6 is used exclusively as an emergency generator under the IDAPA 58.01.01.222 Category II Exemption. The ATR Operations have identified a need for operational flexibility with the diesel generators M-6, M-42 (vent TRA-670-046), and M-43 (vent TRA-670-053). A PTC application has been submitted to combine the operation of the M-6, M-42, and M-43 diesel generators. A PTC has not yet been issued.

The TRA-619 standby diesel firewater pump modified in 1983 and the TRA-633 standby diesel firewater pump constructed in 1980 were modified or installed without seeking a permit to construct from the State of Idaho DEQ. PTC exemptions will not be finalized until Category II PTC exemption guidance is provided by the DEQ.

The sources in Table VIII-2-1 are in compliance and will continue to comply with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, these sources will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, these sources will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.2.1.4.2 Compliance Methodology Forms—Not required for these units.

2.2.1.5 Emission Calculations. NA.

Appendix A

Removal of Monitoring and Test Requirements for TRA Evaporation Pond

IDAHO DEPARTMENT
OF HEALTH AND WELFARE

DIVISION OF
ENVIRONMENTAL QUALITY

1410 North Hilton, Statehouse Mail, Boise, ID 83720-9000, (208) 334-0502 Cecil D. Andrus, Governor Richard P. Donovan, Director

April 18, 1991

M. B. Hinman
Branch Chief
Environmental Support Branch
US Department of Energy
785 DOE Place
Idaho Falls, Idaho 83402

RE: TRA Evaporation Pond -- P-88089 (DOE INEL)

Dear Ms. Hinman:

During the public comment period for the TRA Evaporation Pond, DOE submitted a comment that stated, "40 CFR 61.93 does no apply to this evaporation pond as it is an area source". Our response to this comment, was to document compliance with 40 CFR 61.93 by submitting to the Department a letter from EPA Region X stating that emission monitoring and test procedures required in 40 CFR 61.93 do not apply to the evaporation pond. This letter, O'Neal to Hinman, was received on April 3, 1991.

The TRA evaporation pond is relieved of the requirements (section 3.3 and 5.2) for testing and monitoring radionuclide emissions. The TRA evaporation pond is a diffuse source of emissions and as such does not fall under the point source definition of 40 CFR 61.93 and is not subject to the monitoring and testing requirements of 40 CFR 61.93.

I suggest that a copy of this letter accompany any copies of the permit at your facility, because this is the only record of modification to the permit that you will receive. Our staff resources do not allow us to modify all the existing permits to construct, however, when our Title V operating permit program is on line, an operating permit will be issue to the INEL that will incorporate all these types of changes.

If you have any questions regarding this letter or our permitting process please contact me at 334-5898.

Sincerely,

Martin Bauer
Manager
Permits Section
Idaho Air Quality Bureau

MB:tg

cc: A. Cole/R. Elkins, PFO
Source File
File Manual
COF 1.1

Appendix B

Permits

STATE OF IDAHO PERMIT TO CONSTRUCT AN AIR POLLUTION EMITTING SOURCE	**PERMIT NUMBER** 023-00001 **AQCR** 061 **CLASS** A1 **SIC** 9999 **ZONE** 12 **UTM COORDINATE (km)** 342.2, 4827.6

1. **PERMITTEE**

   United States Department of Energy, Idaho Operations Office

2. **PROJECT**

   TRA Evaporation Pond

3. **MAILING ADDRESS**	**CITY**	**STATE**	**ZIP CODE**
850 Energy Drive	Idaho Falls	ID	83401

4. **SITE LOCATION COUNTY**	**NO. FULL TIME EMPLOYEES**	**PROPERTY AREA AT SITE (Acreage)**
Butte	10,000	596,600

5. **PERSON TO CONTACT**	**TITLE**	**TELEPHONE NUMBER**
Richard C. Cullison	Environmental Program Manager	(208) 526-0709

6. **EXACT PLANT LOCATION**

   Idaho National Engineering Laboratory, Test Reactor Area

7. **GENERAL NATURE OF BUSINESS AND KINDS OF PRODUCTS**

   Governmental Research

8. **GENERAL CONDITIONS**

This permit is issued according to the **Rules for the Control of Air Pollution in Idaho,** Section 16.01.01.200, and pertains only to emissions of air contaminants which are regulated by the State of Idaho and to the sources specifically allowed to be constructed by this permit.

This permit (a) does not affect the title of the premises upon which the equipment is to be located, (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment, (c) does not release the permittee from compliance with other applicable federal, state, tribal or local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Department of Health and Welfare, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.

This permit is not transferable to another person, place, piece or set of equipment. This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.

THIS PERMIT HAS BEEN GRANTED ON THE BASIS OF DESIGN INFORMATION PRESENTED WITH ITS APPLICATION. CHANGES OF DESIGN OR EQUIPMENT THAT RESULT IN ANY CHANGE IN THE NATURE OR AMOUNT OF EMISSIONS MUST BE APPROVED IN ADVANCE BY THE DEPARTMENT.

ASSISTANT ADMINISTRATOR PERMITS AND ENFORCEMENT Signature on Original	**DATE** December 13, 1995

1. SOURCE

1.1 Process Description. The permittee is authorized to construct a lined evaporation pond (TRA-715) which will receive discharge from the Warm Waste Water System at the Idaho National Engineering Laboratory's (INEL) Test Reactor Area (TRA). The Warm Waste Water System consists of four 50 cubic foot ion exchange beds in two Warm Waste Treatment Facilities (WWTF), the Process Water Building (TRA-605), the Retention Basin Inlet sump (TRA-712), and the Evaporation Pond Sump Station (TRA-716). Additional system components include four 65 cubit foot Bypass Demineralizer resin beds in the Advanced Test Reactor (ATR) (TRA-670) used for chemistry control and cleanup of ATR primary coolant water. The ion exchange beds are designed to remove radioactive impurities from essentially pure demineralized water. The ion exchange media are bypassed in situations involving high conductivity water and/or treatment of water where there would be no appreciable reduction in emissions.

The main discharge path is from the outlet of the WWTF through the Process Water Building (TRA-605), the Retention Basin Inlet Sump (TRA-712), and the Evaporation Pond Pump Station (TRA-716) to the Evaporation Pond. The other main discharge path is from the Bypass Demineralizer resin beds through the same facilities. The effluent water is sampled by the Effluent Radiation Monitor (ERM) in the TRA-605 basement and by the daily proportional sampling system in the building TRA-636 at the Retention Basin Inlet Sump. Minor discharge paths include some buried piping from existing tanks and old reactor facilities which are routed directly to the Retention Basin Inlet Sump and infrequent discharges routed directly to the Evaporation Pond itself from generating sources both inside and outside of the TRA site. In cases where water is diverted around either the ERM or the daily proportional sampling system, the waste water is sampled to confirm compliance with the Emission Limits section of this permit.

1.2 Control Description. Air emission points and associated controls include the following:

1.2.1 The evaporation pond is ten feet deep, five feet below grade with a five foot high berm. The pond will have a double liner separated by one foot of sand. A perforated drainage pipe will be installed between the liners and the pipe will slope toward a sump to provide leak detection capability. The pond will be located approximately 1,250 feet east of the east TRA perimeter fence. The total area of the pond will be approximately five acres.

1.2.2 A 20,000 gallon floating roof storage tank will be used to accept discharge water which will be diverted to this storage tank when the radionuclide loading exceeds 100 times the normal level, as described in Section 4.1 of this permit. The storage tank vent exhausts through the ventilation system to the TRA Material Test Reactor Stack (MTRS).

1.2.3 A 100,000 gallon floating roof storage tank will be used to accept discharge water which will be diverted to this storage tank when the radionuclide loading exceed 1,000 times the normal level, as described in Section 4.1 of this permit. The storage tank vent exhausts through the ventilation system to the TRA Material Test Reactor Stack (MTRS).

2. EMISSION LIMITS

2.1 The permittee shall operate this source in accordance with all applicable requirements contained in the National Emission Standards for Emissions of Radionuclides from Department of Energy Facilities (40 CFR 61.90).

2.2 Volatile radionuclide discharges to the evaporation pond shall not exceed 27.1 curies per month nor 324.3 curies per year, as determined from daily proportional sampling performed pursuant to Section 3.1 of this permit.

2.3 Nonvolatile radionuclide discharges to the evaporation pong shall not exceed 42.6 curies per month nor 510.9 curies per year, as determined from daily proportional sampling performed pursuant to Section 3.1 of this permit.

3. TESTING AND MONITORING REQUIREMENTS

3.1 The permittee shall conduct daily proportional composite sampling on the effluent stream prior to the entry point to the evaporation pond. Each daily grab sample will be analyzed to demonstrate compliance with the nonvolatile radionuclide emission limit specified in Section 2.3 of this permit. A composite sample will be analyzed on a monthly basis using liquid scintillation counting methods to determine compliance with the volatile radionuclide emission limit specified in Section 2.2 of this permit.

3.2 The permittee shall perform weekly radiological surveys of the pond liner during the second and third quarters of each calendar year (April 1 to September 30) and decontaminate as necessary to maintain contamination levels less than or equal to 10^5 dpm/100 cm^2 (1.0E5 disintegrations per minute per 100 square centimeters of any exposed evaporation pond liner).

3.3 The permittee shall monitor and test in accordance with the requirements described in 40 CFR 61.93.

4. OPERATING REQUIREMENTS

4.1 The permittee shall install, calibrate, maintain and operate, in accordance with manufacturer's specifications, a sodium iodide detector (or equivalent alternative method) to monitor for gross gamma radiation in the effluent stream to the evaporation pond. The detector will be calibrated to the "normal" discharge stream and will trigger an alarm when the discharge stream radionuclide loading exceeds 10 times the "normal" level. When this level is exceeded, the permittee shall replace or regenerate

the resin bed within the ensuing 24 hours if it was a malfunction of the resin bed that caused the alarm. If the discharge stream radionuclide loading exceeds 100 times the "normal" levels, the discharge stream will be diverted to the 20,000 gallon interim storage tank. If the discharge stream radionuclide loading exceeds 1,000 times the "normal" levels, the discharge stream will be diverted to the 100,000 gallon interim storage tank. "Normal" discharge or level would cause radionuclides to be emitted at those values presented in Sections 2.2 and 2.3 of this permit.

4.2 In the event of a diversion of effluent flow, all water diverted to the 20,000 gallon and the 100,000 gallon interim storage tanks will be rerouted through the cleanup system, prior to entering the evaporation pond. If required, the diverted water may be transported to the Idaho Chemical Processing Plant (ICPP) at the INEL site or to some other facility for processing.

5. REPORTING AND RECORDKEEPING REQUIREMENTS

5.1 The permittee shall submit to the Department a quarterly report summarizing the results of the discharge stream monitoring required in Section 3.1 of this permit. The report shall contain an estimation of the amount of radionuclides discharged to the evaporation pond (in Curies) during each reporting period. The report shall distinguish between volatile and nonvolatile radionuclide emissions. The quarterly report shall be based on a quarter calendar year and is due no later than thirty (30) days after the end of each quarter.

5.2 The permittee shall receive documentation of EPA approval on proposed radionuclide monitoring and testing procedures in accordance with Section 3.3 of this permit. This documentation shall be submitted to the Department prior to the operation of the source covered by this permit.

5.3 The permittee shall record each date when a radiological survey of the evaporation pond liner is completed to demonstrate compliance with Section 3.2 of this Permit. This information shall be recorded in a log which shall be kept on-site for the most recent two (2) year period and shall be made available to Department representatives upon request.

5.4 Within one hundred and eighty (180) days from the issue date of this amended Permit to Construct, the permittee shall develop and submit to the Department an "Operation and Maintenance Manual" for the radiological survey and decontamination of the evaporation pond liner. At a minimum, the manual shall address the following:

5.4.1 The methods and procedures used to conduct the radiological survey of the evaporation pond liner.

5.4.2 The methods and procedures used in decontaminating the evaporation pond liner.

PERMIT TO CONSTRUCT GENERAL PROVISIONS

A. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the **Rules for the Control of Air Pollution in Idaho.** The emission of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the **Rules for the Control of Air Pollution in Idaho,** and the Environmental Protection and Health Act, Idaho Code 39-101, et.seq.

B. The permittee shall at all times (except as provided in the **Rules for the Control of Air Pollution In Idaho)** maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

C. The permittee shall allow the Director, and/or his authorized representative(s), upon the presentation of credentials:

1) To enter at reasonable times upon the premises where an emission source is located, or in which any records are required to be kept under the terms and conditions of this permit; and

2) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring methods required in this permit, and to require stack emission testing in conformance with the Department's **Procedures Manual for Air Pollution Control** when deemed appropriate by the Director.

D. Nothing in this permit is intended to relieve or exempt the permittee from compliance with any applicable federal, state, or local law or regulation, except as specifically provided herein.

E. The permittee shall notify the Idaho Division of Environmental Quality, in writing, of the required information for the following events within five working days after occurrence:

1) Initiation of Construction - Date
2) Completion/Cessation of Construction - Date
3) Actual Production Startup - Date
4) Initial Date of Achieving Maximum Production Rate - Production Rate and Date

F. If emission testing is specified, the permittee must schedule such testing within sixty (60) days after achieving the maximum production rate, but not later than one-hundred and eighty (180) days after initial startup. Such testing must **strictly** adhere to the procedures outlined in the Department's **Procedures Manual for Air Pollution Control,** and will not be conducted on weekends or state holidays. Testing procedures and specific time limitations may be modified by the Idaho Division of Environmental Quality by prior negotiation if conditions warrant adjustment. The Idaho Division of Environmental Quality shall be notified at least fifteen (15) working days prior to the scheduled compliance test. Any records or data generated as a result of such compliance test shall be made available to the Department upon request.

The performance tests will be performed at the **maximum** production rate. If this maximum rate is not achieved during testing, the allowable production rate will be limited to the production rate attained during testing.

G. The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.